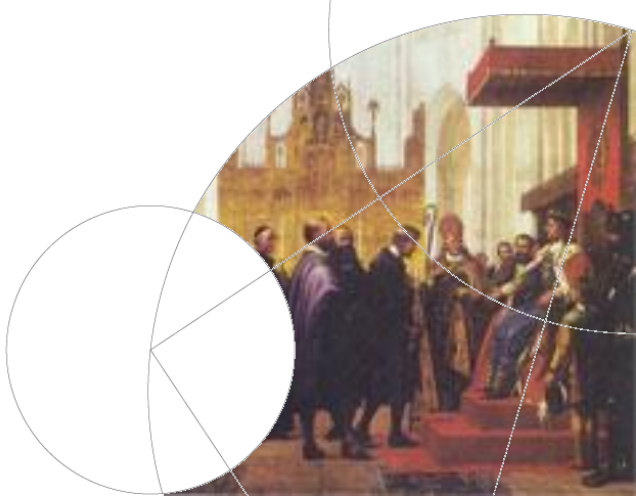
IT-security: User Authentication
Access control
Identity and Access Management
Passwords
Biometrics
Social engineering



Carsten Jørgensen
Department of Computer Science

DIKU 16. september 2022

IAM - ACL

An access control list (ACL) is a list of permissions attached to an object.

An ACL specifies which users or system processes are granted access to objects, as well as what operations are allowed on given objects

Alice: read,write; Bob: read

Subjects, Objects, and Access Rights

Subject

An entity capable of accessing objects

Three classes
- Owner
- Group
- World

Object

A resource to which access is controlled

Entity used to contain and/or receive information

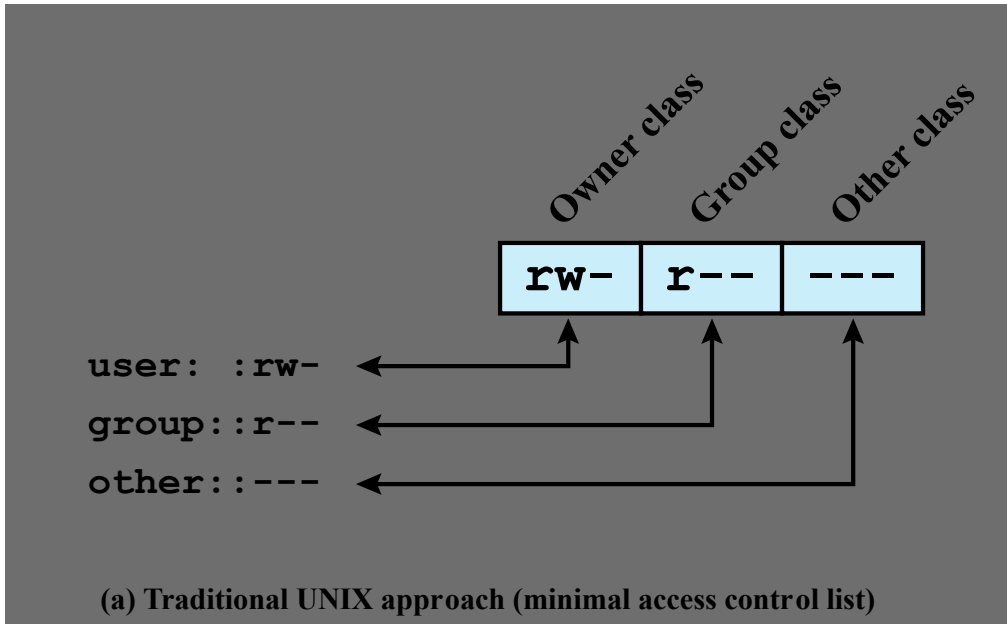
Access right

Describes the way in which a subject may access an object

Could include:
- Read
- Write
- Execute
- Delete
- Create
- Search

UNIX - File Access Control

- Unique user identification number (user ID)
- Member of a primary group identified by a group ID
- Belongs to a specific group
- 12 protection bits
  - Specify read, write, and execute permission for the owner of the file, members of the group and all other users
- The owner ID, group ID, and protection bits are part of the file's inode



(a) Traditional UNIX approach (minimal access control list)

UNIX File Access Control

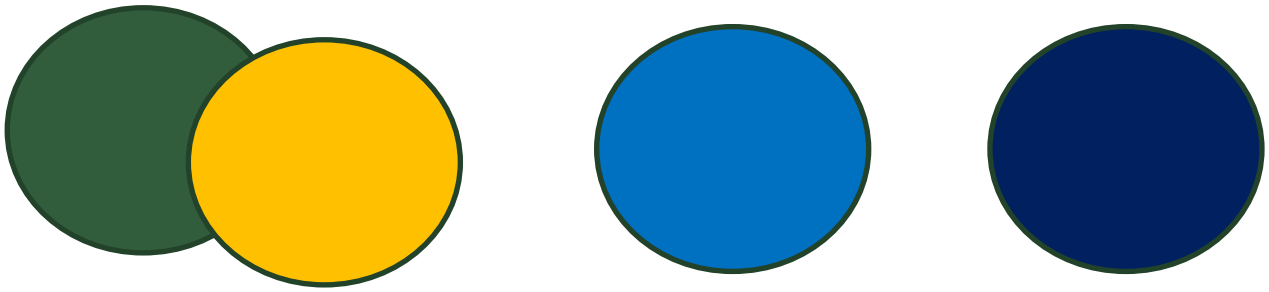
Traditional UNIX - File Access Control

- "Set user ID"(SetUID)
- "Set group ID"(SetGID)
  - System temporarily uses rights of the file owner/group in addition to the real user's rights when making access control decisions
  - Enables privileged programs to access files/resources not generally accessible
- Sticky bit
  - When applied to a directory it specifies that only the owner of any file in the directory can rename, move, or delete that file
- Superuser
  - Is exempt from usual access control restrictions
  - Has system-wide access
  - AWS Roles

IAM

Role Based Access Control (RBAC)

Peter is a current employee, Peter is Administrator
Mia is an employee, Mia has access to SAP
Susan is no longer employee, Susan has Guest-access
Jens has resigned, he was Administrator, does he still have access?



Access Control Policies

Discretionary access control (DAC)

- Controls access based on the identity of the requestor and on access rules (authorizations) stating what requestors are (or are not) allowed to do

Mandatory access control (MAC)

- Controls access based on comparing security labels with security clearances

Role-based access control (RBAC)

- Controls access based on the roles that users have within the system and on rules stating what accesses are allowed to users in given roles

Attribute-based access control (ABAC)

- Controls access based on attributes of the user, the resource to be accessed, and current environmental conditions

IAM – and PAM

An administrative process coupled with a technological solution which validates the identity of individuals and allows owners of data, applications, and systems to either maintain centrally or distribute responsibility for granting access to their respective resources to anyone participating within the IAM framework.

IAM refers to the processes, technologies and policies for managing digital identities and controlling how identities can be used to access resources

IAM – Identity Life Cycle Management

Identity, Authentication and Authorization
Principle of Least Access
Groups and Roles
Administration
Auditing, Logging and Reporting
Segregation of Duties/Funktionsadskillelse

IAM

Identity: Who are you (person or a computer): UserIDs, certificates, cards…

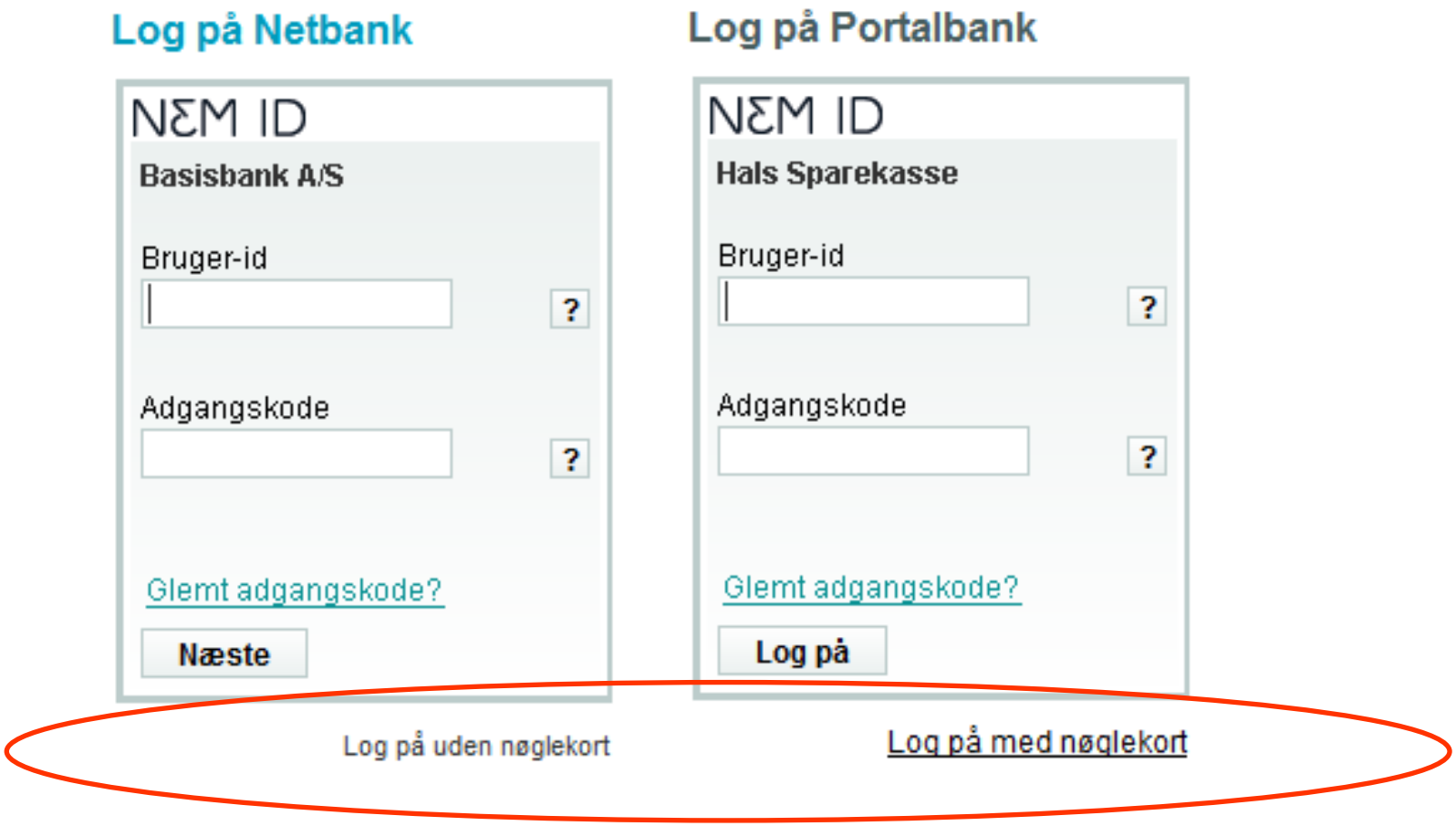
Authentication: Prove your identity: challenge-response: Passwords, Private keys, PINs… Your possession of the secret proves you are who you claim to be

Authorization: the system controls which resources you're allowed to access. Typically through the use of a token or ticket mechanism.
Allows you to access only that which the administrators have determined is necessary, thus enforcing the *principle of least privilege*

IAM

	Provided by	Answers	Attributes	Uniqueness
Identity	principal	"Who are you?"	public assertion	yes, locally
Authentication	principal	"OK, how can you prove it?"	secret response	no
Authorization	system	"What can I do?"	token or ticket	(n/a)
			access control	

Identity, authentication, authorization – MitID/NemID



Service Provider provides access to services based on their own risk assessment

IAM - Case

Du arbejder på et internt projekt til udvikling af nyt økonomisystem til din virksomhed.

Projektlederne fortæller, at for at overholde tidsplanen skal der ikke bruges bruger-id'er. Systemet skal i stedet have et stærkt hardcodet password (17 tegn incl. specialtegn)
Alle der skal have adgang til økonomisystemet vil få oplyst koden hvis de har brug for adgangen.

Hvad siger du til projektlederen?

IAM - Case

Du arbejder på et internt projekt til udvikling af nyt økonomisystem til din virksomhed.

Projektlederne fortæller, at for at overholde tidsplanen skal der ikke bruges bruger-id'er.
Systemet skal i stedet have et stærkt hardcodet password (17 tegn incl. specialtegn)
Alle der skal have adgang til økonomisystemet vil få oplyst koden hvis de har brug for adgangen.

Hvad siger du til projektlederen?

IAM – Case

Identity, Authentication and Authorization
Principle of Least Access
Groups and Roles
Administration
Auditing, Logging and Reporting
Segregation of Duties/Funktionsadskillelse

IAM – Case

Identity, Authentication and Authorization
Principle of Least Access
Groups and Roles
Administration
Auditing, Logging and Reporting
Segregation of Duties/Funktionsadskillelse

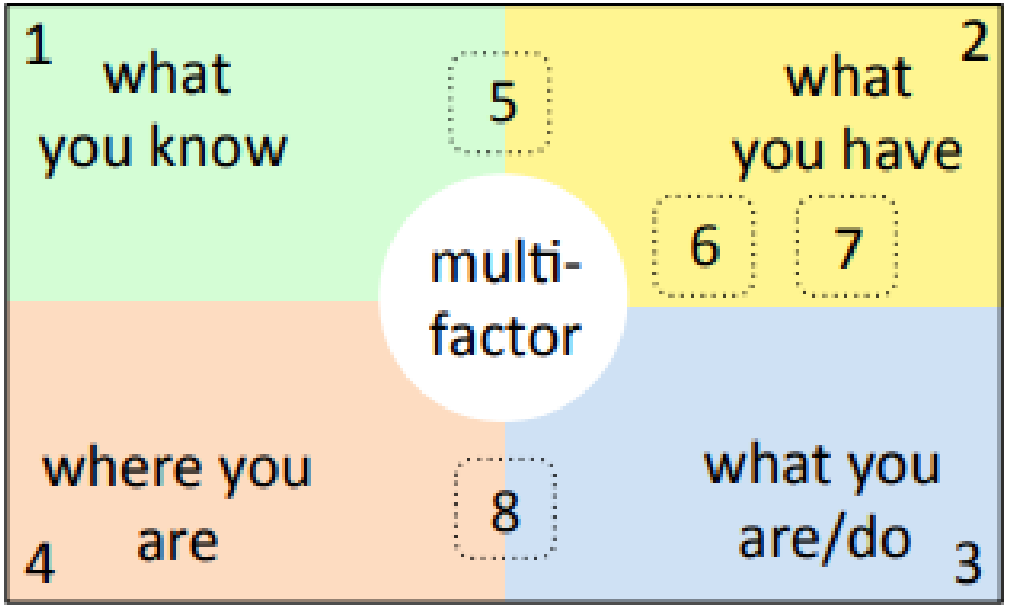
IAM – Case

Identity, Authentication and Authorization
Principle of Least Access
Groups and Roles
Administration
Auditing, Logging and Reporting
Segregation of Duties/Funktionsadskillelse

Tre faktorer+ til autentificering

Noget man **ved**, noget man **har** og noget man **ér**

User authentication categories based on type of verification evidence



Noget man **gør**, **hvor** man er

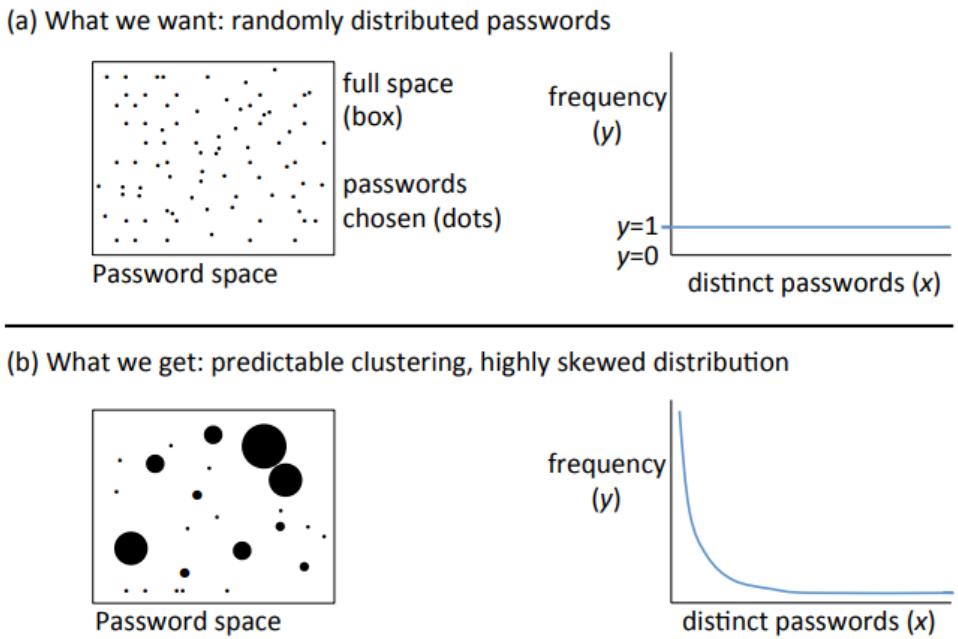
Hvad er et godt password?

Hvad er et godt password?

Brugernes passwords er altid dårlige

Opfylder kun lige akkurat de tekniske krav der stilles

Dvs. password regler styrker passwords, men kun op til den tekniske grænse løsningen tvinger brugerne til



Hvad er et godt password?

Med mindre vi bliver tvunget - eller undervist – i andet, så vælger vi alle password efter dette mønster:

Hvad er et godt password?

1. **Ingen koder**
   Hvis man giver en bruger frit valg vil alle brugere selvfølgelig, alt andet lige, vælge at ikke bruge passwords, fordi det er det mest brugervenlige (dvs. letteste)

2. **Almindelige ord**
   Hvis systemet tvinger til at bruge et kodeord, er første problem hvordan man selv husker sin kode.
   Så man vælger i første omgang sin kode ud fra, om man tror man kan huske den, ikke fordi man tænker på "sikkerhed"
   – brugerens risikovurdering

Mental models – ”noget man tit tænker på”

You Retweeted

Gene Spafford @TheRealSpaf · 22 Sep 2014

“@shariv67: Had I known I was going to need this many passwords, I would have had a lot more pets.”

19 17

You Retweeted

George Takei @GeorgeTakei · 23 Jul 2014

Every time I change my password, I have to get a new pet.

615 1K

Hvad er et godt password?

@WillFerrell
Will Ferrell

I changed all my passwords to 'incorrect'. So my computer just tells me when I forget.

Hvad er et godt password?

Systems:
But we use the same systems – otherwise we cannot remember the passwords:

- If both upper-case and lower-case letters are required people only use one upper-case letter – and it is always first:
  The password becomes ”Password”, not ”pAssword”

- If numbers are also required, they are always last: ”Password12”

- Non-alfabetic are the very last part, if they are required.
  So the ”super-strong” password would be ”Password12!”

- On smartphones we make patterns, such as "1234", "1122", "1111" or years/dates such as "1945“
  (the PIN should be at least 8 characters)

Two passwords

Password123dec **hY6%%#2873GH/GtAQ?08-dPe2>S**

- Guessing the first PW means all future PWs can be guessed
- The user can remember the first password - no.2 will be written down somewhere because of password change rules
- Nr.2 is impossible to break, no.1 is not

- Which password is best now?
- Which password is best next month?

Hvad er et godt password?

"The password must be impossible to remember and nowhere written down"

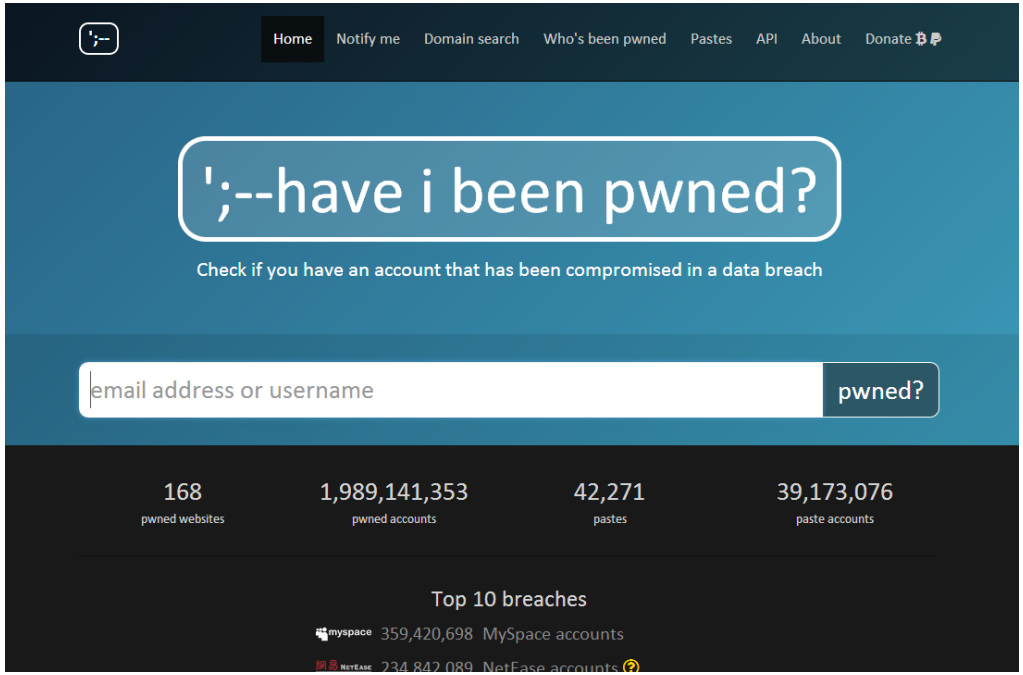
Peter Gutmann

Må man skrive sine passwords ned?

https://www.youtube.com/watch?v=Srh_TV_J144

Password reuse

Model2: samme password på mange sites
Er det et problem?



Password reuse:
https://haveibeenpwned.com

Hvor langt skal et password være?
Hvad med special tegn?

http://howsecureismypassword.net

Hvad er et godt password?

Password huskere/password managers

Overvej password managers som 1password, Roboform, og Password Safe.
Kan beskytte koderne og kan give adgang til de gemte koder med et "super-password".

Autogenere stærke koder:
Undgår genbrug af passwords på forskellige sider
Password længden kan øges

Password managers

Undgår password genbrug
Stærke lange passwords over det hele

Problemer?

Password manager salt

Sikkerhed er ikke sort-hvidt

they need no longer be remembered. In practice, master passwords may be weaker than hoped, and the individual site passwords managed remain not only static (thus replayable) but often remain user-chosen (thus guessable) for reasons explained below. Overall, password managers thus deliver fewer security advantages than expected, while introducing new risks (below); their main advantage is improved usability.

Computer Security and the Internet: Tools and Jewels from Malware to Bitcoin, Second Edition by Paul C. van Oorschot p.77

Forelæsning 23.sep: Risikovurderinger

Angreb imod brugerens passwords

1. Hvad er dit password? (spørge)
2. Gætte / default passwords
3. Dictionary Attack
4. Brute Force (f.eks. imod LanMan hash)
5. Rainbow Tables

Password cracking

Hashcat: https://hashcat.net

hashcat
advanced
password
recovery

- hashcat
- Forum
- Wiki
- Tools
- Events
- Converter
- Contact

```
HWMon.Dev.#2.....: Temp: 55c Fan: 30% Core:1010Mhz Mem:1250Mhz Lanes:16
HWMon.Dev.#3.....: N/A

Started: Wed Nov 30 10:48:18 2016
Stopped: Wed Nov 30 10:48:43 2016
```

Algorithms

- MD4
- MD5
- Half MD5 (left, mid, right)
- SHA1
- SHA-256
- SHA-384
- SHA-512
- SHA-3 (Keccak)
- SipHash
- RipeMD160
- Whirlpool
- DES (PT = $salt, key = $pass)
- 3DES (PT = $salt, key = $pass)
- GOST R 34.11-94
- GOST R 34.11-2012 (Streebog) 256-bit
- GOST R 34.11-2012 (Streebog) 512-bit
- Double MD5
- Double SHA1
- md5($pass.$salt)
- md5($salt.$pass)
- md5(unicode($pass).$salt)
- md5($salt.unicode($pass))
- md5(sha1($pass))
- md5($salt.md5($pass))
- md5($salt.$pass.$salt)
- md5(strtoupper(md5($pass)))
- sha1($pass.$salt)
- sha1($salt.$pass)
- sha1(unicode($pass).$salt)
- sha1($salt.unicode($pass))
- sha1(md5($pass))
- sha1($salt.$pass.$salt)
- sha1(CX)

Default passwords

Eksempel på dårlige passwords:
Amerikanske Dankort maskiner

Amerikanske ATM/Dankortmaskiner hacket med default password

ATM hacket, tror indeholder 5$ sedler i stedet for $20 => udbetaler 3x for meget

Pre Paid Card

9 dage før kunder rapporterede

Amerikanske ATM/Dankortmaskiner hacket med default password

http://www.youtube.com/watch?v=cmW_4R81jVU

CNN Report: Robber Tricks ATM machine

CNN Report: Robber Tricks ATM machine

Amerikanske ATM/Dankortmaskiner hacket med default password

Minibank 1510 - Mozilla Firefox

Filer Rediger Vis Gå til Bogmærker Funktioner Hjælp

http://www.phoenixcardnet.com/1510.htm

Computer Forensics.DK

Home Up

Merchants

Distributors

Employees

Products

Services

ATM balancing

Disputes

- 5.7" LCD with 320 x 240 resolution
- 8 menu screens
- 7 screen advertising capability (Mono or Color)
- Encrypted Pin Pad (EPP)
- Triple DES compliant
- Removable money box

- Dip-type card reader
- *Lock options:*
  - Manual dial lock
  - Electronic lock
  - Cencon 2000 lock

PHOENIX CARDNET

Tel: (888) 972-4286

Færdig

Adblock

Encrypted Pin Pad (EPP)
Triple DES compliant

Amerikanske ATM/Dankortmaskiner hacket med default password

Welcome to Tranax Technologies, Inc. - Mozilla Firefox

Filer Rediger Vis Gå til Bogmærker Funktioner Hjælp

http://www.tranax.com/

Computer Forensics.DK

login contact

home | Products | Industry | Channel Partners | Service & Support | Corporate info

TRANAX TECHNOLOGIES RECOGNIZED WITH PRESTIGIOUS
GROWTH STRATEGY LEADERSHIP AWARD

2006 FROST & SULLIVAN
Growth Strategy Leadership Award

More Info

Card Dispensing Self-Service Terminal

Instant Issue Cards a Reality

- Instant Issue Stored-Value Cards
- Automate Stored-Value Card Dispensing
- Increase Revenues

details >>

news:

Partnership Delivers Self-Service & Financial Services to Presto Convenience Stores
TIO & Tranax Partner to Deliver Self-Service Bill Payment and Financial Services to Presto Convenience Stores.

Strong Demand in Credit Union Market for Tranax 'Essential Banking' ATMs
Tranax announced strong demand for its Mini-Bank family of "Essential Banking" ATMs for credit unions and smaller banks.

Tranax wants to be first to ride wave of change
For Dr. Hansup Kwon, change is a good thing. It had better be, for the mild-mannered leader of Tranax Technologies Inc. is banking his company?s future on it.

Tranax Technologies recognized by Frost & Sullivan
Tranax, chosen for exceptional growth in the highly competitive North American ATM Marketplace, was

Færdig Adblock

Amerikanske ATM/Dankortmaskiner hacket med default password

Knowledgebase:

The ATM is programmed with the passwords that the distributor requests when the order is placed to program a new ATM. *When special passwords are not requested they are left at the factory default (see your mini-bank operators manual)* Every new ATM that is shipped from Tranax has a copy of the print setup included in the "open me first" box or envelope. The master password is hand written at the top of the print setup for the convienence of the installer.

Amerikanske ATM/Dankortmaskiner hacket med default password

mb1500 "Operator Manual" - Google Search - Mozilla Firefox

Filer Rediger Vis Gå til Bogmærker Funktioner Hjælp

http://www.google.dk/search?hl=en&q=mb1500+%22Operator+Manual%22&btnG=Search

Gå til

Computer Forensics.DK

Google

Web Images Groups News more »

mb1500 "Operator Manual" Search Advanced Search Preferences

Web Results **1** - **1** of **1** for **mb1500** "**Operator Manual**". (**0.19** seconds)

Tip: Try removing quotes from your search to get more results.

[PDF] MB1500 Cover_TOC.doc
File Format: PDF/Adobe Acrobat - View as HTML
Operator Manual. Doc. No. 101205. 2.3. Step 6. Open the top of the ATM. **... Operator Manual**. Doc. No. 101205. 3.5. How to enter data with the keypad **...**
www.wegrowbusiness.ca/manuals/Tranax_MB_Operator_Manual.pdf?GCE=489d2476c9728ab16cbde0a2acc438a5 - Supplemental Result - Similar pages

Sponsored Links

Operators Manuals
Looking for operators manuals? Save!
EveryRule.com

Tranax manual inurl:pdf

Amerikanske ATM/Dankortmaskiner hacket med default password

Thranax:
Master = 555555
Service = 222222
Operator = 111111

Triton:
12345

Lipman:
Merchant = 2222222
Technician = 1111111

GTI:
1234

Amerikanske ATM/Dankortmaskiner hacket med default password

USA : Support > Manuals - Mozilla Firefox

Filer Rediger Vis Gå til Bogmærker Funktioner Hjælp

http://www.lipmanusa.com/site/sites/USA/lipman.asp?pi=902

Computer Forensics.DK

Lipman TransAction Solutions

HOME | USA Members Login SEARCH

Company | Products | Solutions | Support | News | Investor Relations

MANUALS

Nurit Cash Register Manuals

2050 Complete Manual
2050 Quick Reference Guides
NURIT 2059i Manual
NURIT Store Manager Manual

NURIT 20XX Manuals

2085-2090 App. 4.82 Menu Guide
2085-2090 App. 4.7x Function Guide
20XX App. 4.82 Manual
App. 4.8X Driver License Verification Guide
App. 4.7X Store & Forward Guide

NURIT 3000-3020 Manuals

30XX App. 4.82 Menu Guide
30XX App. 4.82 Function Guide
30XX App. 4.82 Manual
App. 4.8X Driver License Verification Guide
App. 4.7X Store & Forward Guide
3020 Battery Saver Guide
3020 ImagePak Installation Guide

NURIT 8000 Manuals

Færdig Adblock

Amerikanske ATM/Dankortmaskiner hacket med default password

Adobe Reader - [1099.pdf]

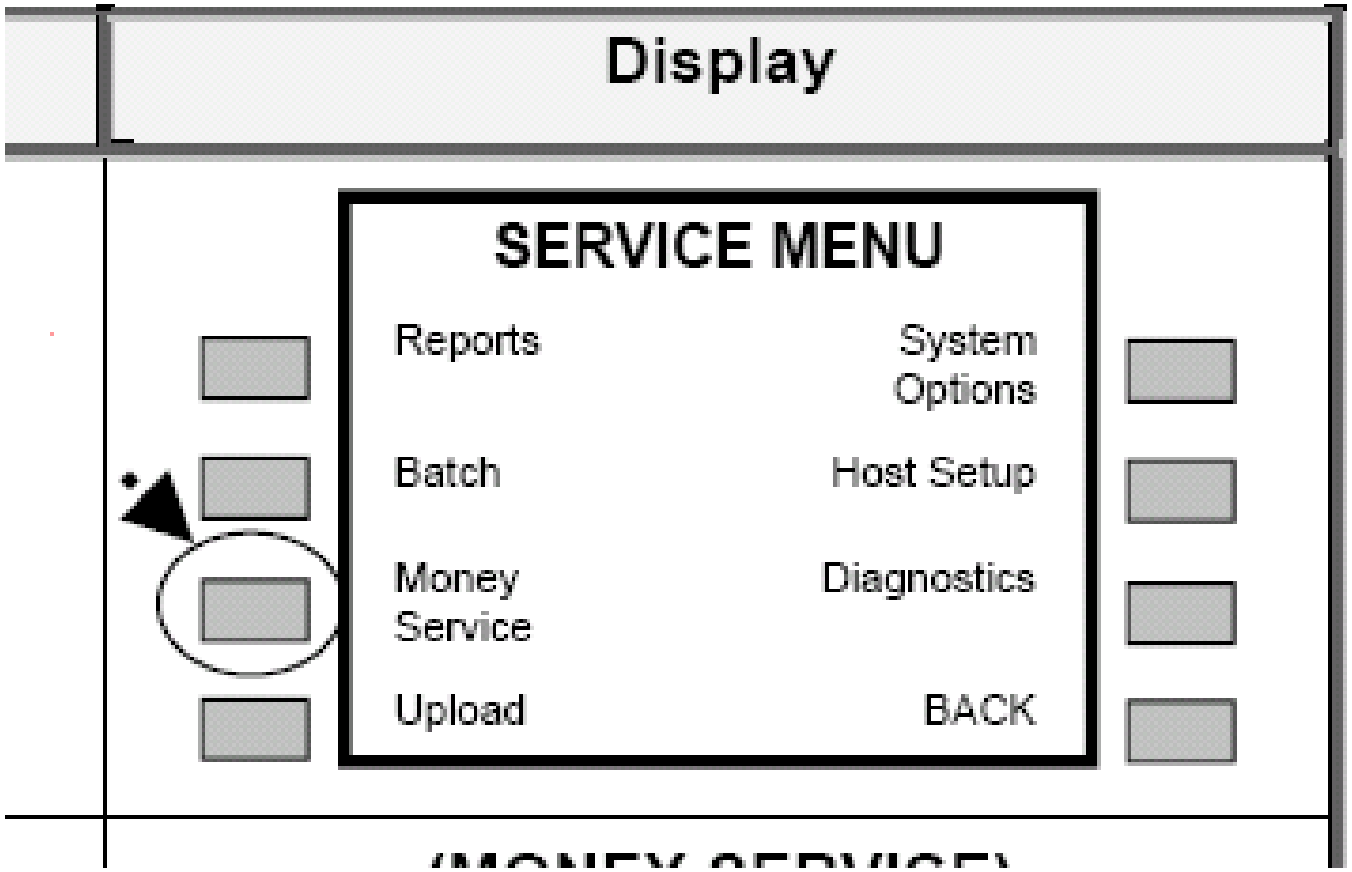
Accessing the Service Menu

Important!	One of two passwords can be entered. For merchant access please enter the merchant password. For Technician access (including *Money Service*) please enter the Technician password. The default system passwords are: Merchant = 2222222 Technician = 1111111

Function Description	The following Step/Action table will assist you in accessing the Service Menu of the ATM from the idle prompt.

Step	Action	Display
1.	From the Idle Prompt press the following buttons in the following order: **[CANCEL], [CLEAR], [ENTER], [1], [2], [3]**	**ENTER PASSWORD** [_ _ _ _ _ _]
2.	**Input the default Password** Note: For Merchant Access input the merchant default password. For technician access (Including *Money Service*) input the technician default password.	**ENTER PASSWORD** [* * * * * *]

Amerikanske ATM/Dankortmaskiner hacket med default password



Amerikanske ATM/Dankortmaskiner hacket med default password

TP-820327-001B * Operating Guide for the Diebold 1075ix Exterior Walk-up Cash Dispenser - Mozilla Firefox

Filer Rediger Vis Gå til Bogmærker Funktioner Hjælp

http://www.diebold.com/ficcdsvdoc/techpubs/ixCustomer/TP-820327-001/TP-820327-001_fram.htm

Computer Forensics.DK

DIEBOLD We won't rest.

Operating Guide for the Diebold 1075ix Exterior Walk-up Cash Dispenser

required perform the following steps.

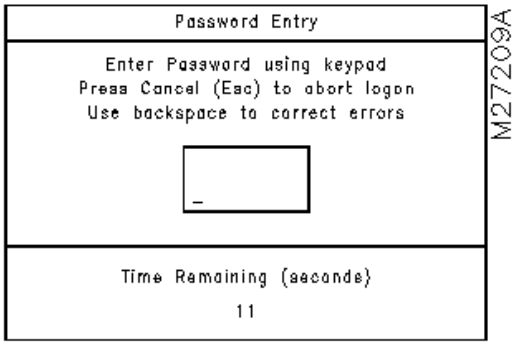
4. If continuous availability mode is set up to require a password, the Password Entry screen appears (Figure 3-22). Enter your 6-digit password, using the numeric keys on the keyboard.

NOTE

If you are logging on for the first time, the default password is 0-0-0-0-0-0.

As you enter your password, each entry appears as an x. Use the backspace key to correct a mistake. After you enter the sixth digit, your password is verified and the Continuous Availability Mode screen appears (Figure 3-21).

Figure 3-22 Password Entry Screen



Logging on to Maintenance Mode

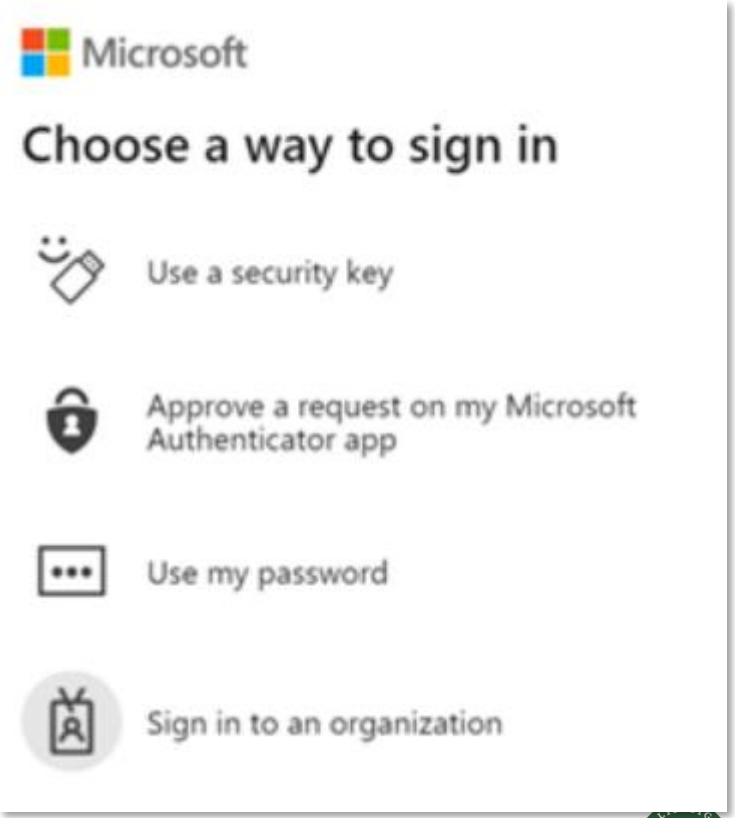
1. Go to the Terminal Control Software (TCS) screen (Section 3.7.1)

Find: pas Find Næste Find forrige Fremhæv alt Forskel på store og små bogstaver

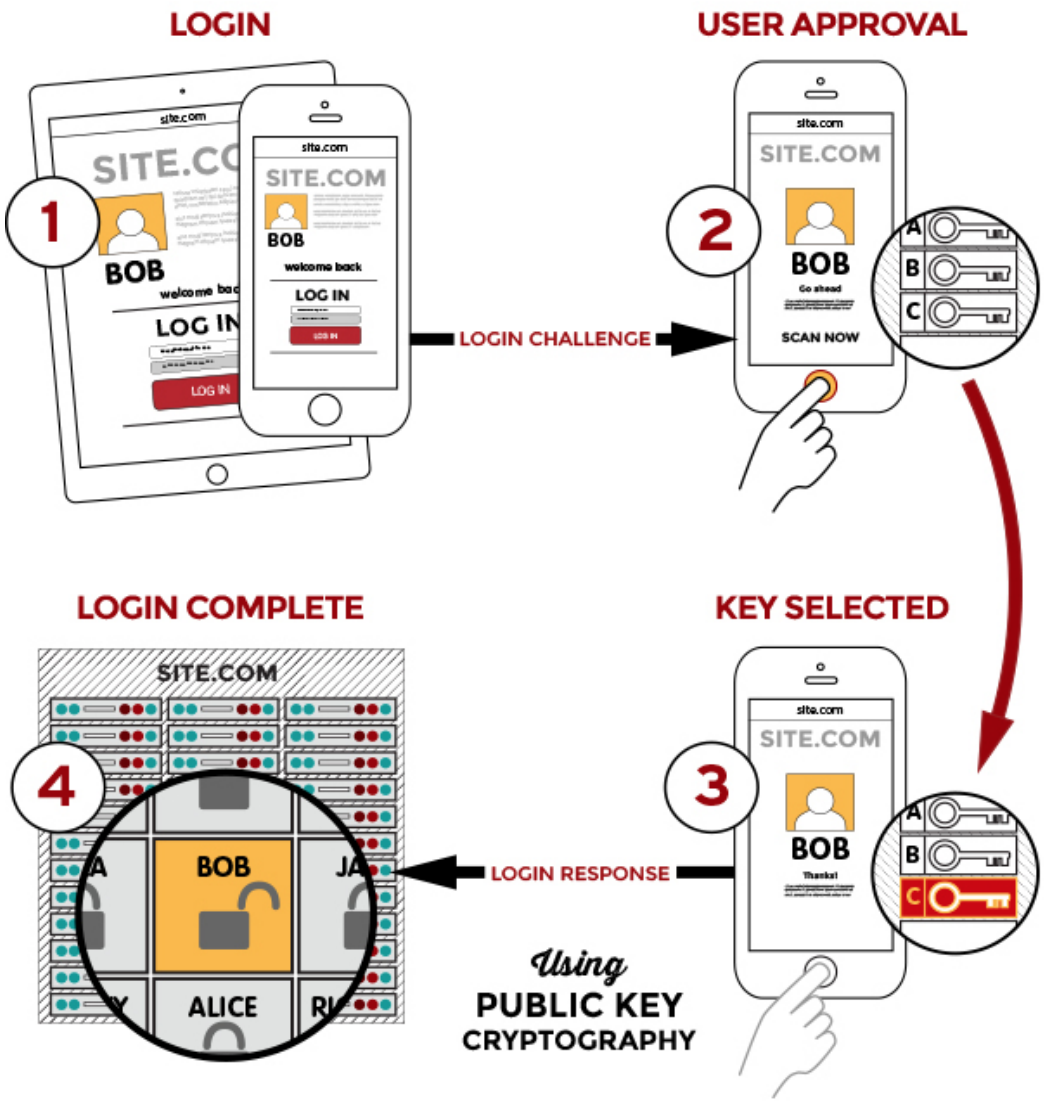
Passwordless / FIDO2

Passwordless authentication is a form of multi-factor authentication (MFA).

Replaces passwords with two or more verification factors secured and encrypted on a user's device, such as a fingerprint, facial recognition, a device pin, or a cryptographic key



Passwordless / FIDO2



Pause

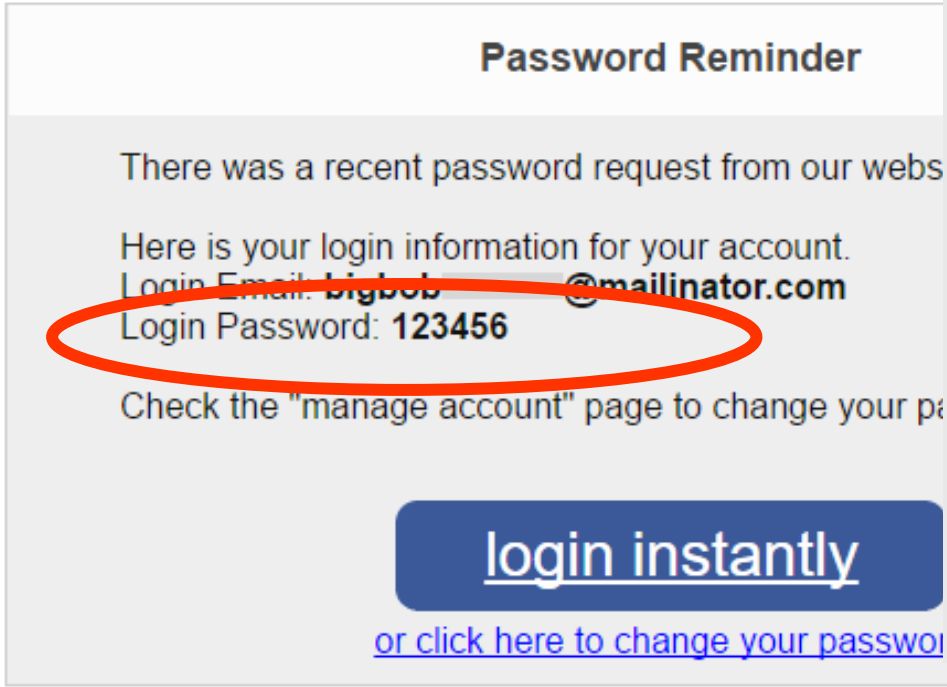
Password baggrund

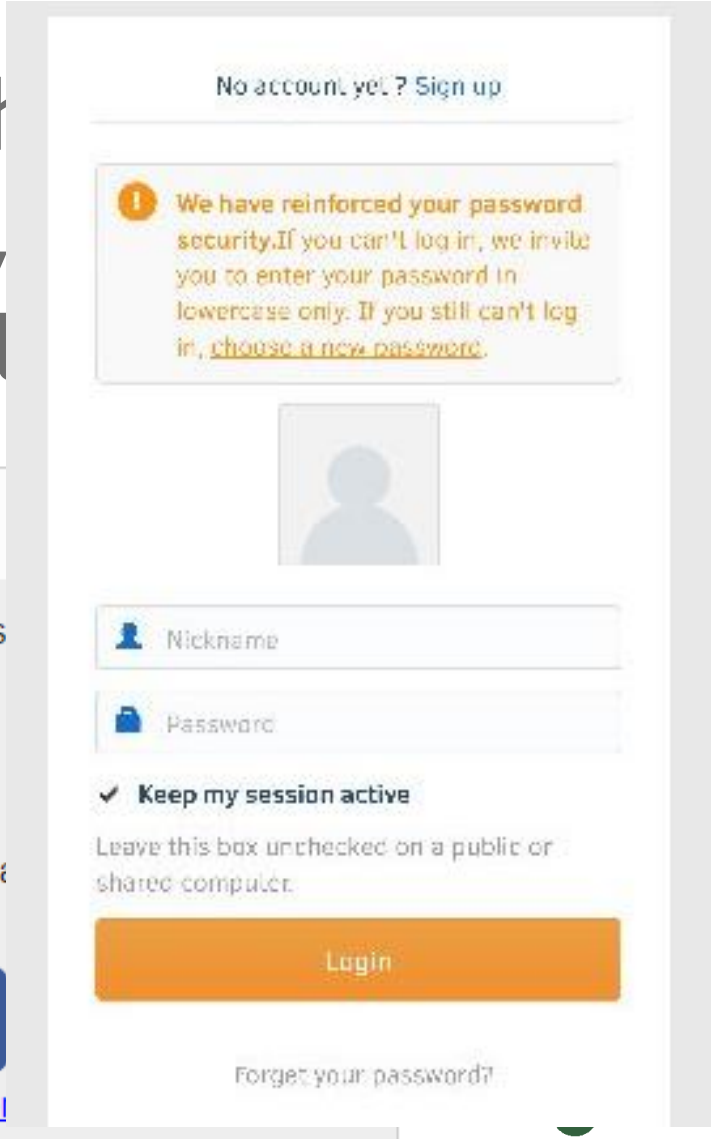
Passwords er den nye firewall

Password hash,
hash og salt,
scrypt/bcrypt

Baggrund

Password hash
hash og salt,
scrypt/bcrypt

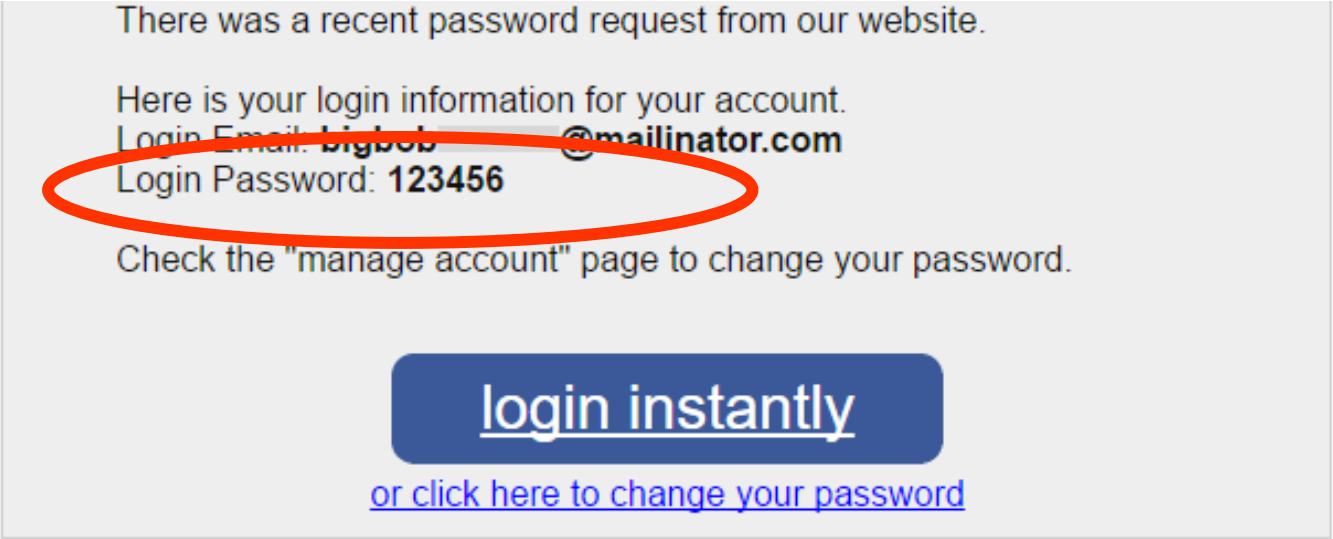




Baggrund

Password hash, hash og salt, scrypt/bcrypt

Don't store the password, store a hash of the password


There was a recent password request from our website.

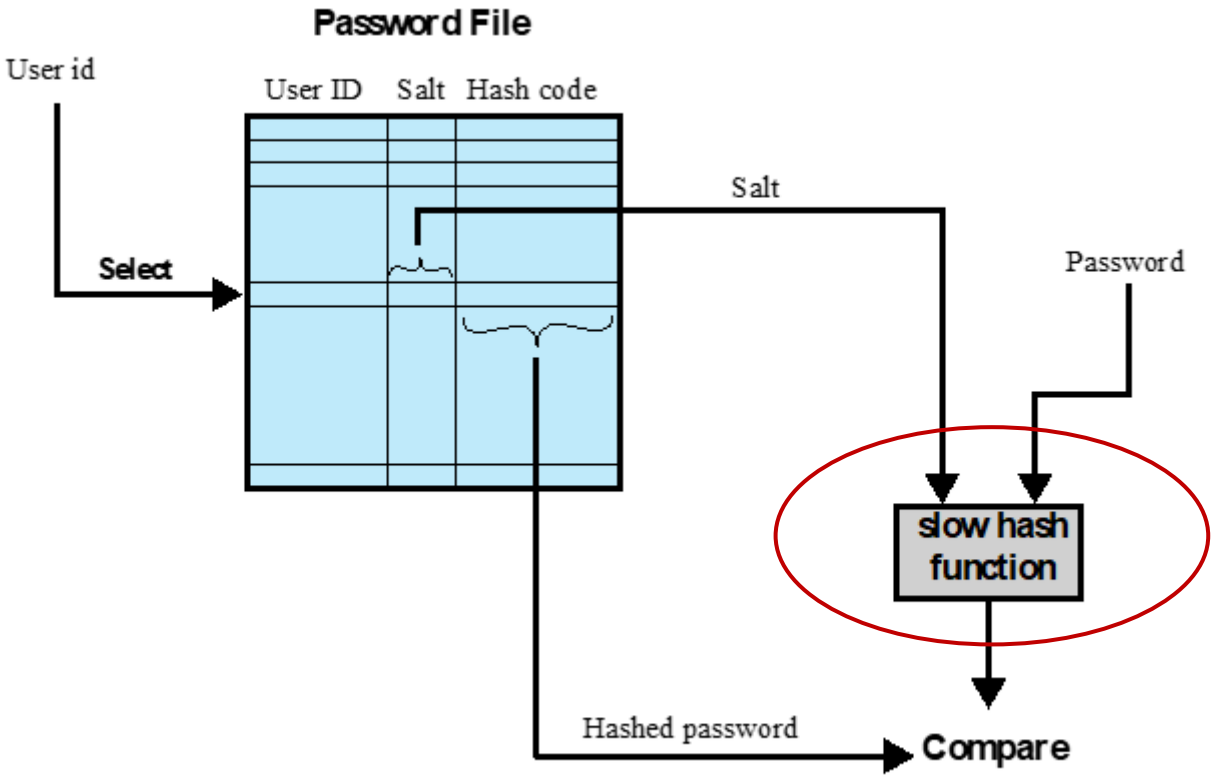
Here is your login information for your account.
Login Email: **bigbob @mailinator.com**
Login Password: **123456**

Check the "manage account" page to change your password.

login instantly

or click here to change your password

Salt



(b) Verifying a password

Password hash?

Direkte off-line adgang til password hash
eller
Online - forbinde til serveren hver gang?

- Begrænsninger på antallet af forsøg?
- Time-delay mellem sign-in attempts, brug penalty period (f.eks. 1 time) hvis forkert password er indtastet for mange gange - f.eks. 10 gange

Password hash?

The password **"alpine fun"** can be brute-forced in only 2 months if the server can be attacked 100 times per second. But, with a penalty period and 5 second delay, the same password can suddenly sustain an attack for 1,889 years.

No of attacks	Password	Time	Security level
100 times per sec	alpine fun	2 months	Low risk
1 time every 5 sec	alpine fun	63 years	Secure
1 time every 5 sec with a 1 hour penalty period after 10 attempts	alpine fun	1,889 years	Secure forever

Se f.eks. ”The Usability of Passwords” http://www.baekdal.com/tips/password-security-usability og ”The Usability of Passwords FAQ”: http://www.baekdal.com/tips/the-usability-of-passwords-faq

Apple

Apple default: 80ms per password attempt delay
Enforced by tamper resistant hardware

Exponential growth:

# characters	[0-9]	[0-9a-z]	[0-9a-zA-Z]
1	0.8 seconds	2.9 seconds	5 seconds
2	8 seconds	1.7 minutes	5.1 minutes
3	1.3 minutes	1 hour	5.3 hours
4	13 minutes	1.6 days	2 weeks
5	2.2 hours	8 weeks	2.3 years
6	22 hours	5.5 years	140 years
7	1.3 weeks	200 years	9 thousand years
8	13 weeks	7 thousand years	550 thousand years
9	2.5 years	260 thousand years	34 million years
10	25 years	9 million years	2 billion years

Two Factor Authentication (2FA)

Se f.eks.:
https://www.yubico.com
https://duo.com

Two Factor Authentication (2FA) – nogle termer

Push notification
Verify identity by approving a push notification, for instance in an app

Phone callback
Require you to pick-up a phone call and for instance press a specific key, or any key, before you are provided access

Challenge-response
Requires you to enter data back to the system to verify a transaction is correct

Token
A hardware device, after pushing a button to generate a code, the code is then typed into the password prompt

Two Factor Authentication (2FA) – nogle termer

SMS passcode
A code is sent to your phone via SMS and must be typed into the two-factor prompt

One-Time Password/One-Time Pad (OTP)
Can only be used one time

Hvad er et godt password?

Hvor tit skal password skiftes?

Ikke kritisk – afhængig af hvor man har indtastet passwords

Krav om skift f.eks. hver 90 dage kan være et problem fordi mennesker så typisk vælger svage passwords.
=> ”Password06” eller ”PasswordJuni”

Hvad er et godt password?

Overvej det hvis det er muligt at bruge 2-faktor autentifikation på en site

Næsten altid en forbedring af sikkerheden

Support er dyrt
Pas på "secret questions"
Backup systemet for glemte passwords må ikke være svagere end dit password.

Meget lavere sikkerhed

Pick a secure password:
"0k5ijU)=2w8VAiqxozKyB"

Now, in case you forget it, what's your favorite color?
"Blue"

Kort sagt

2FA er næsten altid bedst
(brug det hvis i overhovedet kan)

Brug en password manager

Lange passwords er bedre end komplekse passwords
(passphrases over 14 tegn)

Brug forskellige passwords på forskellige sites
(password manager)

Back dine passwords op

Lange passwords er bedre end hyppige skift - med mindre der har været risiko for aflytning

Biometrics

Biometri

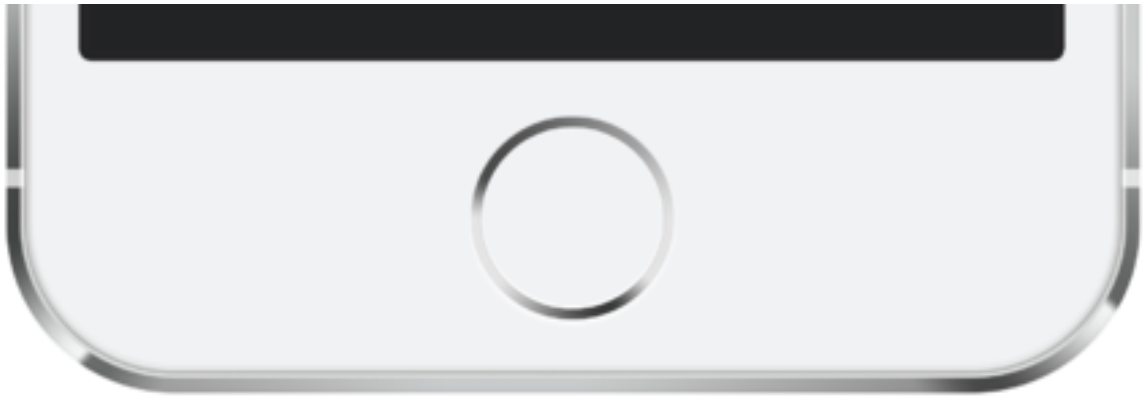
Noget man ved
Noget man har
Noget man er
Hvor man er

Biometri bør altid kombineres med BrugerID/password

Biometri samles typisk i en hash

Hvad er et godt password?

Biometri?



Biometri

Er biometri identity eller authentication ?

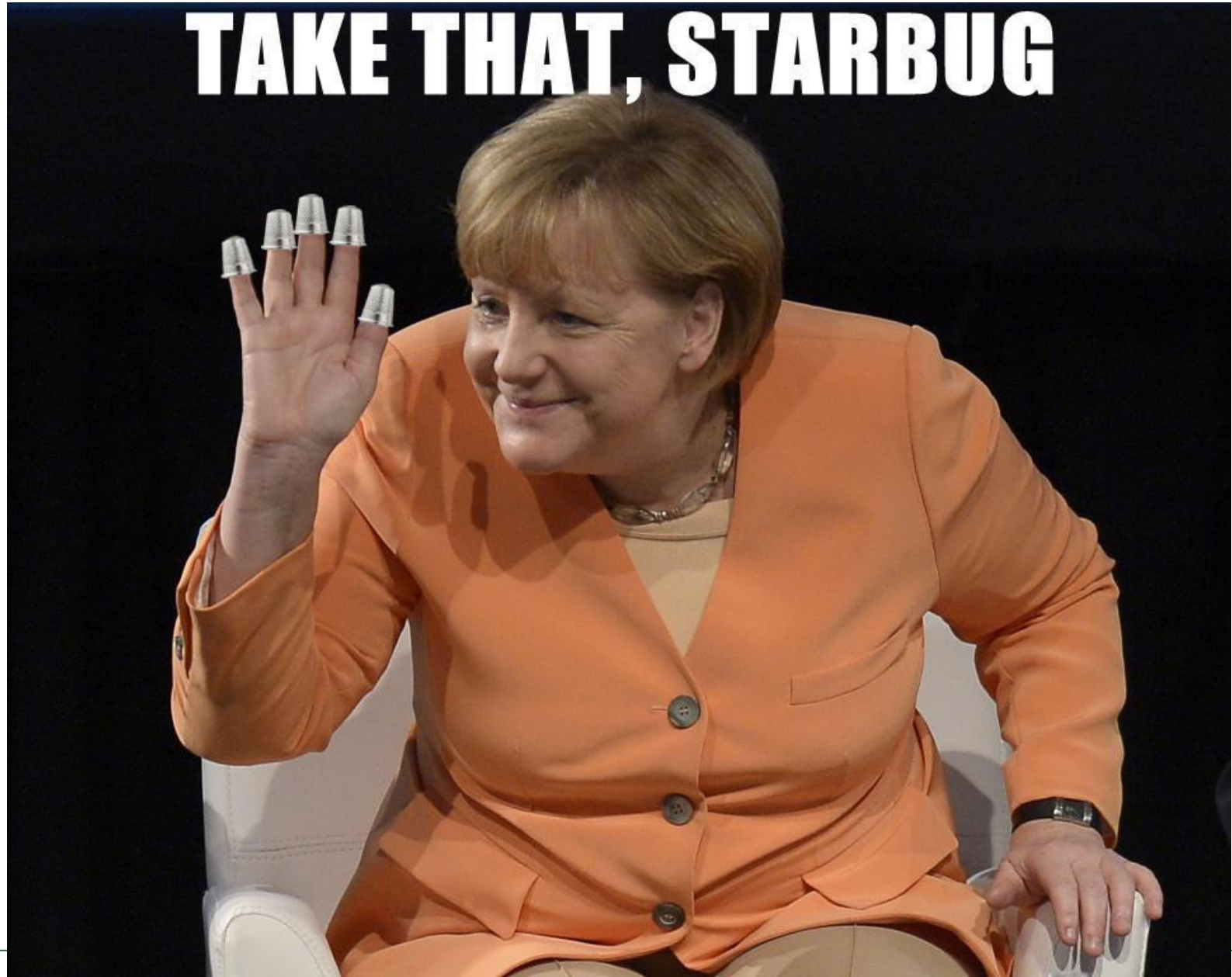
Public or private?
Man efterlader biometri-data overalt

AI/Deep-fakes (stemme, ansigt osv)

Biometri som autentifikation – uden andre faktorer – er potentielt et problem
(risiko vurdering!)

Biometri

Threat-
model



Biometri

To biometriske målinger er aldrig helt ens, derfor er der altid element af usikkerhed:

False Acceptance Rate:
Rate at which someone other than the actual person is falsely recognized.

False Rejection Rate:
Rate at which the actual person is not recognized accurately.

Biometri

Modality	Type	Notes
fingerprints	P	common on laptops and smartphones
facial recognition	P	used by some smartphones
iris recognition	P	the part of the eye that a contact lens covers
hand geometry	P	hand length and size, also shape of fingers and palm
retinal scan	P	based on patterns of retinal blood vessels
voice authentication	M	physical-behavioral mix
gait	B	characteristics related to walking
typing rhythm	B	keystroke patterns and timing
mouse patterns	B	also scrolling, swipe patterns on touchscreen devices

Table 3.2: Biometric modalities: examples. P (physical), B (behavioral), M (mixed). Fingerprint (four digits) and iris biometrics are used at U.S.-Canadian airport borders.

Biometri

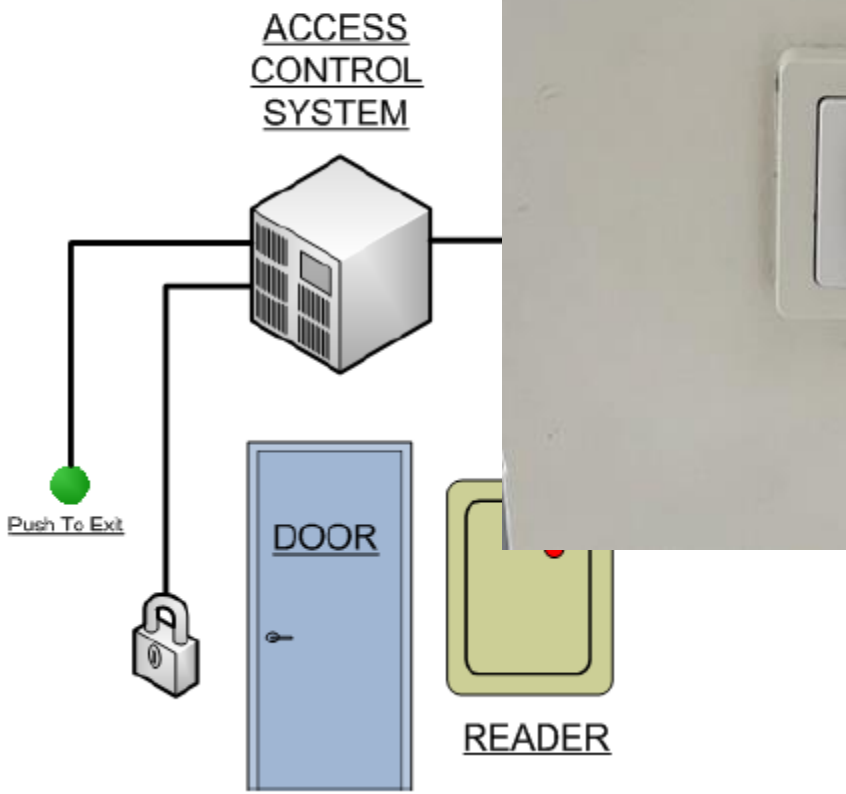
TABLE 37.1 Overview of Selected Biometric Technologies

Biometric	Uniqueness	Universality	Permanence	Measurability	Acceptability
DNA	High	High	High	Low	Low
Face geometry	Low	High	Medium	High	High
Fingerprint	High	Medium	High	Medium	Medium
Hand geometry	Medium	Medium	Medium	High	Medium
Iris	High	High	High	Medium	Low
Retina	High	High	Medium	Low	Low
Signature dynamics	Low	Medium	Low	High	High
Voice	Low	Medium	Low	Medium	High

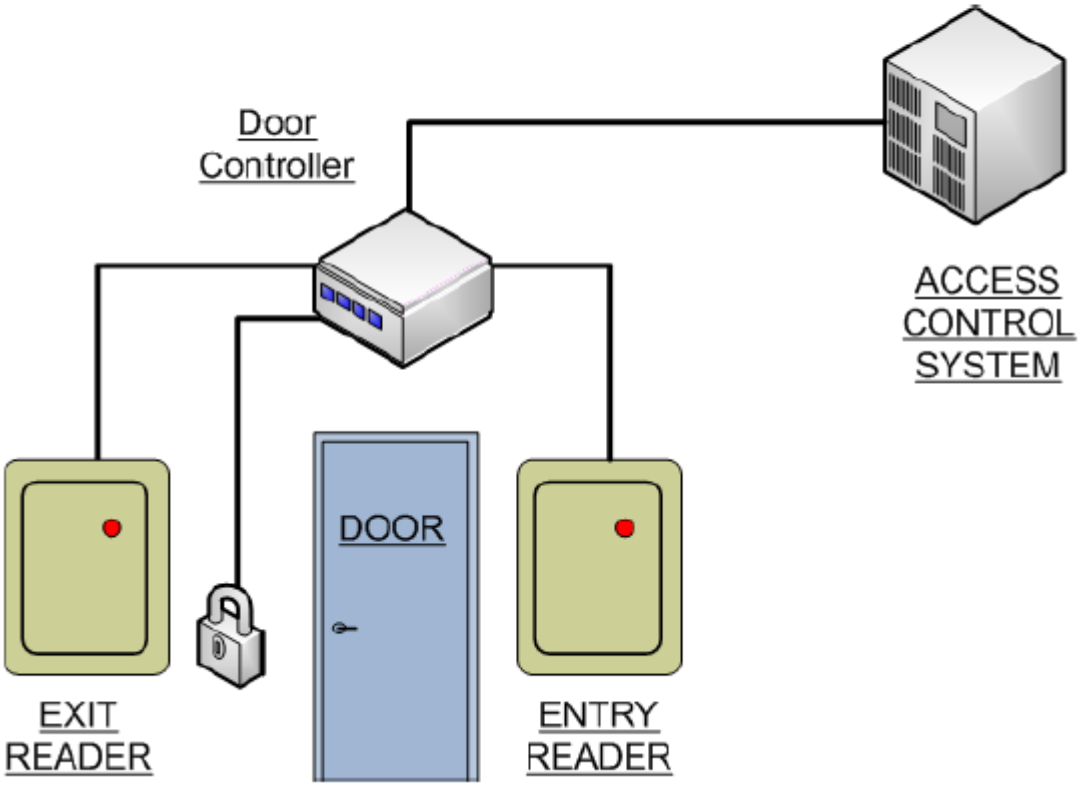
Hvor let er det at stjæle credentials ?
Hvad skal løsningen beskytte?

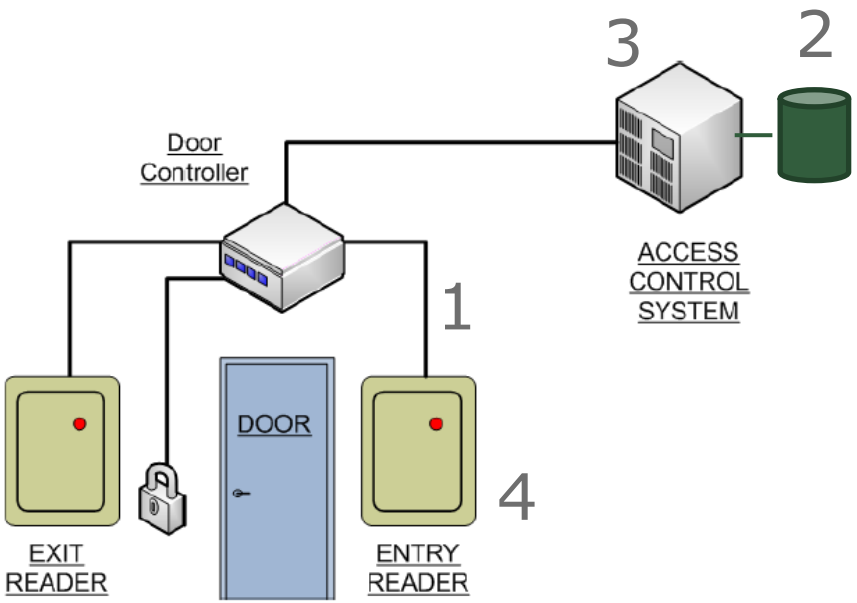
Basic syste

Placering af "request to exit" knapper er vigtig, kan de aktiveres ude fra?



Anti-Passback system

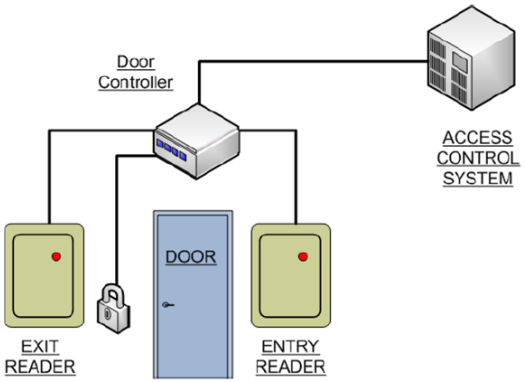




1. Angreb imod data og kommunikation
2. Angreb imod templates
3. Angreb imod software
4. Angreb med sensoren

Biometri

Anti-Passback system



Der findes også default access nøgler til smart cards.
F.eks. - kan en MD5 hash af UID og master nøglen give adgang til smartcardet/administrator kortet

Credential revocation

Fingeraftryk / hånd revokering

Beskyttelse af biometri-data

”Cheating”: Social engineering

Security is difficult

Intelligent adversaries

Kompromittering via Social Engineering

- At narre mennesker til at gøre ting de ellers ikke ville gøre eller udlevere fortrolige oplysninger.
- Kan fører til hacking og identitetstyveri.
- F.eks. ved at optræde som insider med afsæt i viden om virksomheden.

Hvordan kan en angriber få viden om en virksomhed?

Hvad sker der ?

Nysgerrighed
Hjælpsomhed
Undgå konflikter
Stress

"No matter how low an opinion you have of your users, they will figure out a way to disappoint you."
-Stamos' Law

"We have dumb monkeys who clicks on buttons"
- Chris Hoff

Fremgangsmåden

Informationsindsamling
Opbygning af tillid
Scenariet
Pres for en løsning - ”hvad kan vi gøre?”

Bagrundsviden

0. Indformationsindsamling

Internet, sociale netværk, dumpster diving, besøg, opsøge medarbejdere, webmail, linkedin, jobannoncer osv, osv.

Hej, hvad er dit password?

1. Opbygning af tillid

Det er sjældent nok at sige
”Hej, hvad er dit password?” eller
”Hallo – det er din chef, giv mig Admin passwordet eller du er fyret”

En række venlige, trivielle spørgsmål først (opbygger tillid)

Hej, hvad er dit password?

2. Baggrundsscenariet (pretexting)
Ramme for angreb, kan være en hel identitet (baseret på indledende research)

”Her er mit billede”

From: Felipe Carlson <a-.zett@ablestik.com>
To: [redacted]
Subject: good to hear you
Date: Sun, 11 May 2008 10:10:19 +0700 *(05:10 CEST)*

1 attachment Save

Hello! I am tired tonight. I am nice girl that would like to chat with you. Email me at Frida@whoplantcut.cn only, because I am using my friend's email to write this. Mind me sending some of my pictures to you?

GIF image attachment (me)

Hej, hvad er dit password?

3. Pres

”Hvordan løser vi det her?”

Kropssprog, stemmeføring, høflig/vred/travl/autoritær osv

Han er ”en af vores”

Samme sprog og jargon
Det rigtige tøj

Overbevise folk om man ”hører til”

Påklædning er vigtig

Dress as a DJ:
https://www.youtube.com/watch?v=uoIL2x6sIC8

Hvad ville have virket i bussen?

Man er usynlig i en neon-vest

https://www.youtube.com/watch?v=tFur1-i6BpA

Praktisk eksempel

THE DRIVE | OPINION | THE WAR ZONE | MOTORCYCLES | SHOP | Gear Up | NEWSLETTER SIGNUP | search...

Tesla Model 3 Stolen From Mall of America Using Only a Smartphone

A little bit of social engineering can go a long way.

BY ROB STUMPF SEPTEMBER 14, 2018

TECH | AUTOMOTIVE NEWS | CRIME | MODEL 3 | NEWS | POLICE | STOLEN | TESLA | WEIRD NEWS

JAMES LIPMAN/TESLA

Called Tesla customer support to add the car to his Tesla account by vehicle identification number.
Vehicle was then accessible on his smartphone, able to unlock the car and drive it away…

”Pre-loading”

Mange, mange teknikker

Påvirke inden faktiske møde/hændelse
Verifikation af identitet

Fysisk adgang

ID-kort
Piggybacking/tailgating
Telefoner, kopper og pakker
Bude, reparatører, revisorer, journalister
Rygere og andre grupper
Pre-loading

Tyveri, informationsindsamling, trådløse accesspoints, netværksadgang, serverrum
…

Det svageste led i sikkerhedskæden

Telefon, personlig fremmøde,
USB, CD, websider, pdf-filer, hacke
e-mail, vinde gaver, voice beskeder

Don’t click it – and don’t pick it up either!

Ah – og hvis du finder en USB-nøgle på jorden: lad være med at teste den !

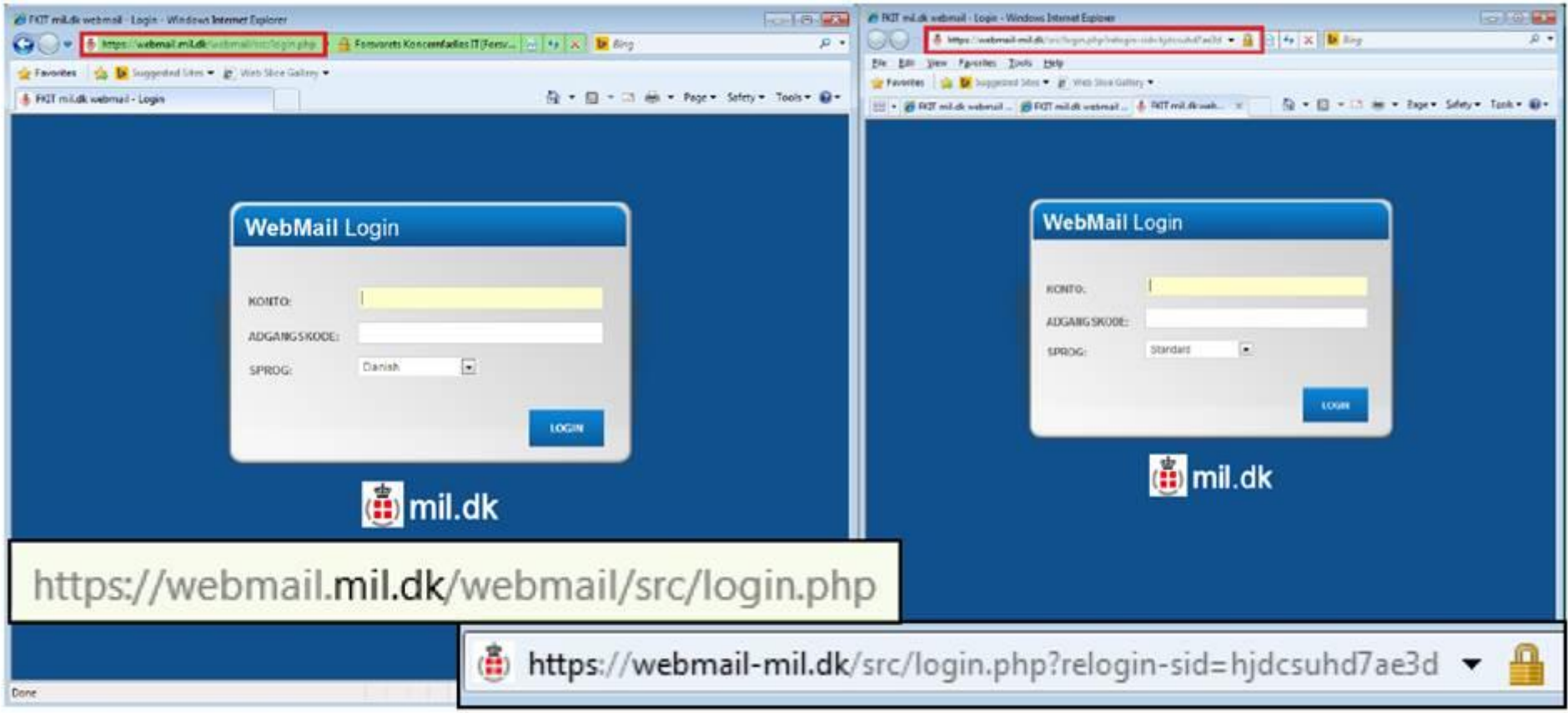
Phishing

A phishing attack usually comes in the form of a message meant to convince you to:

- **click on a link**
- **open a document**
- **install software on your device**
- **enter your username and password into a website that's made to look legitimate.**

Don’t click it

Can I click it?



Billede 1: Den falske e-mail-login-side sidestillet med den legitime side. De to URL'er er fremhævet nedenunder.

Can I click it?

Google

Someone has your password

Hi William

Someone just used your password to try to sign in to your Google Account
[redacted]@gmail.com.

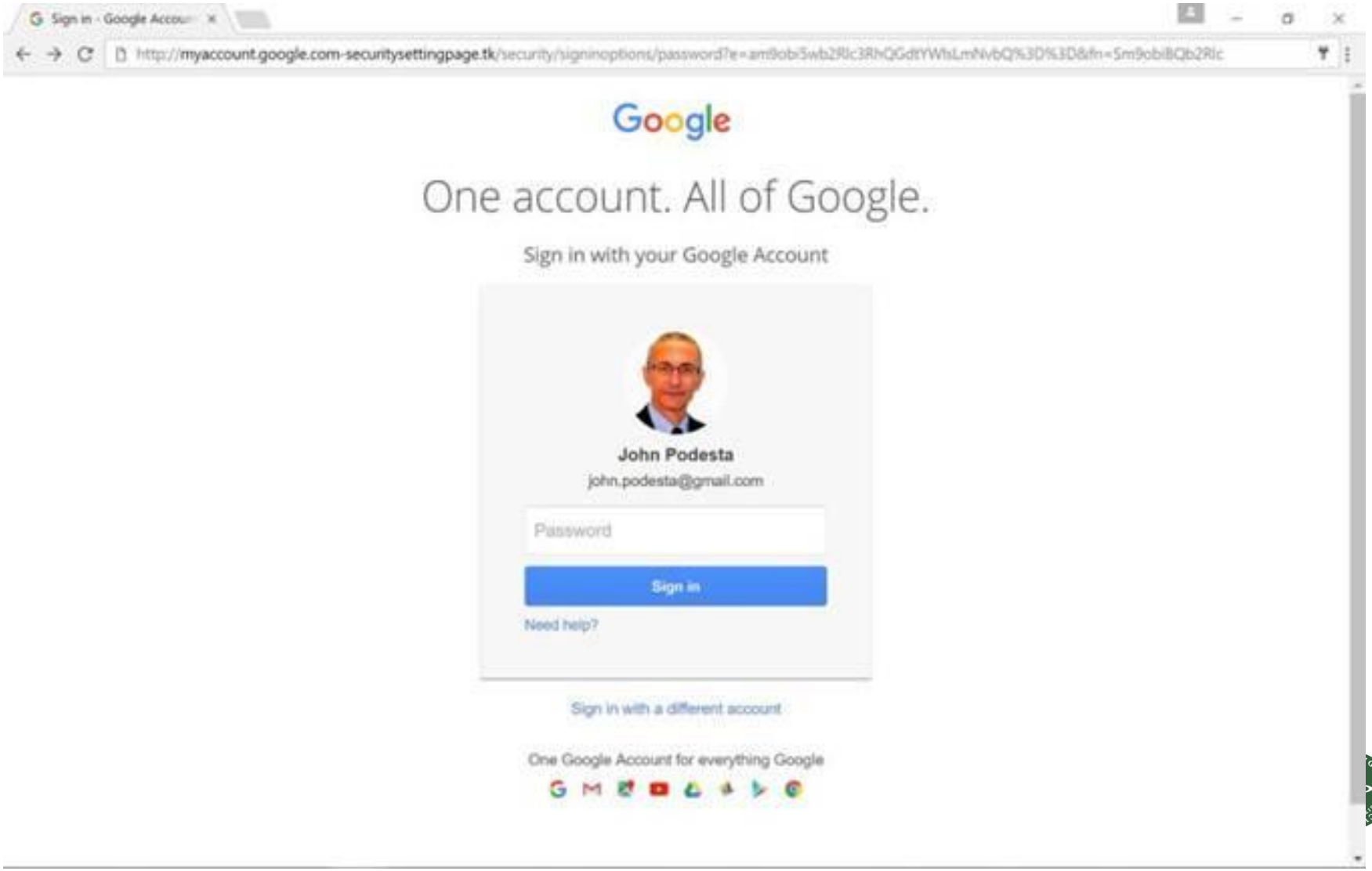
Details:
Tuesday, 22 March, 14:9:25 UTC
IP Address: 134.249.139.239
Location: Ukraine

Google stopped this sign-in attempt. You should change your password immediately.

CHANGE PASSWORD

Best,
The Gmail Team

Can I click it?

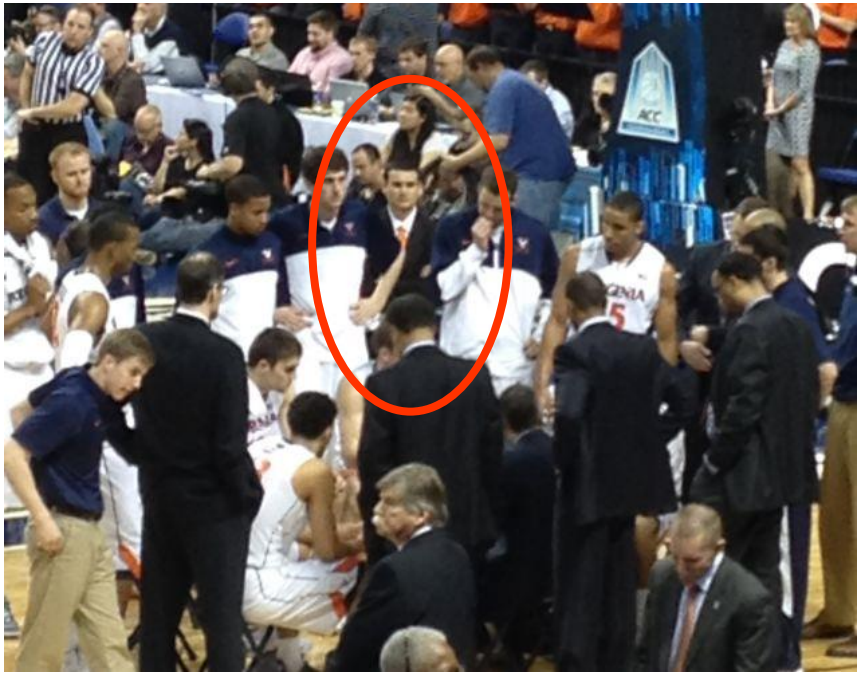


Can I click it?

Be suspicious of all **links** that ask you to log in, regardless of the sender.
And be very careful of all **attached files** – regardless of the sender

By the way - do not *"enable content"* on documents with macros (.docm)

Er det svært for dem?



http://deadspin.com/uva-fan-bluffs-his-way-through-the-perfect-acc-title-ga-1547386713

70 dollars i Walmart…

Hvad gør man imod Social Engineering?

Forstå truslerne

Jo højere sikkerhed, jo mere sandsynlig er social engineering

Træning og understøttende procedurer – hvad er advarselssignalerne -procedure gør det svært for angriber

Ikke kun telefonen - også mail, chat, hjemmesider og fysisk fremmøde m.m.

”Hvordan kan vi forbedre vores procedurer?”

Ikke det samme for alle

Rette niveau af paranoia !

Hvis man føler sig *usikker* – ”der er et eller andet, der ikke føles rigtigt”

Forstå truslerne

0. Informationsindsamling
Makuler dokumenter
Forsigtig i offentlige rum
Information over telefonen, mail o.lign., særligt ved uventede henvendelser

1. Opbygge tillid
Meget snakkende
Hvorfor taler han om det?
Spørg ind ved fejl, hvis fejl fortsætter -> afslut

Forstå truslerne

2. Scenariet
Hvis usikker: gencheck, gencheck, gencheck
Tag dig tid og følg proceduren

3. Pres
Teknikker der benyttes (awareness)
Giv ikke efter
Henvis til politikker og procedurer
Tilkald en leder hvis usikker (overfør risiko), tag ikke beslutningen selv

Mulige tiltag

Anden kanal til at overdrage info, end den der spørges fra, f.eks.

- telefon til voicemail/SMS
- email til leder
- give fysisk til anden person fra afdelingen

Ring tilbage/send mail tilbage
(men ikke reply-to)

Mulige tiltag

Check og bekræft id, også selvom det er svært (eller måske særligt hvis det er svært)

Passwordbeskyttelse af information

Fysisk sikring, f.eks imod tail-gating

Kultur, ”Hvorfor har du ikke skilt på?”

Mulige tiltag

- **Awareness**
- **Opdateret software**
- **Brug 2FA (og/eller password manager)**
- **Bekræft med afsender (vha andre kanaler)**
- **Åben attachments på en sikker måde**
- **Backup**

A sense of urgency is always the first big clue

Giver pretext'en egentlig mening – ville et firma virkelig ringe til dig, eller bede dig om at ringe til dem?
Ville dét firma virkelig bede om den information?

Social engineering teknikker virker i praksis

Makollig Jezvahted and Levdaroum DeBahzted

My colleague just farted, and left the room, the bastard

(.wav)

Spørgsmål